30089
S/057/61/031/011/004/019
B104/B108

26.4511

AUTHORS: Kononov, B. P., and Sarksyan, K. A.

TITLE: A high-vacuum plasma source

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 11, 1961, 1294 - 1297

TEXT: An experimental device (Fig. 1) for producing plasma by mixing electron and ion beams in a vacuum system with a pressure gradient is described. In the tubes AB (d = 4 cm, l = 1.5 m) and KD (d = 1 cm, l = 1.5 m)(Fig. 1) a pressure gradient is produced by continuous inlet of air and evacuation. A system of coils generates a longitudinal magnetic field of 200 - 1000 oe. The electrons emitted from the cathode move toward the anode A, and ionize the gas in the anode region. The ions produced in the anode region move in the opposite direction. When the space charge of the electrons is compensated by the space charge of the ion flux, current increases and the capacitor C is rapidly discharged. At this moment, the plasma density in the high-vacuum region reaches a maximum. The plasma density was measured with h.f.-probes. The maximum plasma density was higher than 10^{12} cm^{-3}. After the end of discharge the gas

Card 1/4

30089
S/057/61/031/011/004/019
B104/B108

A high-vacuum plasma source

pressure was measured with an MH-5 (MN-5) gas-discharge manometer. When voltage was quickly changed from 1 to 3 kv at a pressure of $2 \cdot 10^{-5}$ mm Hg, the time for initiation of the discharge in the manometer was 200 μsec. The gas pressure increased from $2 \cdot 10^{-5}$ to $(1-2) \cdot 10^{-4}$ mm Hg. This may be explained by plasma recombination. The experiments showed a delay between the beginning of discharge and the moment at which the discharge current has reached its maximum value. The delay of current development depends on the discharge-capacitor voltage and the pressure gradient in the anode section. Results are illustrated in Figs. 4 and 5. In the capacitor-voltage interval of 10 - 16 kv the ion velocity ($9 \cdot 10^4$ cm/sec - $35 \cdot 10^4$ cm/sec) is a linear function of voltage. The authors thank Professor M. S. Rabinovich for interest and advice. There are 6 figures and 9 references: 6 Soviet and 3 non-Soviet. The three references to English-language publications read as follows: P. Reynold , H. M. Skarsgard. CERN, 59-19, 1958; E. R. Garrison, R. H. Dawton, I Electr. and Control., 5, no. 1, 29 - 32, 1958; E. R. Garrison. Phil. Mag., 3, no. 35, 1318 - 1325, 1958.

Card 2/84

9.4120 (1003, 1105, 1140)
26.2312

21597
S/109/60/005/010/020/031
E033/E415

AUTHORS: Kononov, B.P. and Sarksyan, K.A.

TITLE: Some Special Features of a Gas Discharge With Oscillating Electrons

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol.5, No.10, pp.1717-1719

TEXT: The article gives the results of experimental and theoretical investigation into the gaseous discharge potentials between an internal spiral electrode (anode) and an external cylindrical electrode (cathode). This construction was used in a diode for rectification of 50 c/s a.c. voltages up to 2 kV and current values up to 30 mA. Graphs are produced of the forward and reverse striking voltages (0.1 to 10 kV) versus the gas (air) pressure (10^{-2} to 1 mm Hg) and the reverse-to-forward voltage ratio $U_{обр}/U_{пр}$ ($U_{reverse}/U_{forward}$) is also plotted. Difference in the reverse and forward striking voltages is explained by the fact that, with forward polarity, the electrons can perform oscillatory movements under the action of the electric field. This leads to increase in the length of the electron path

Card 1/4

Some Special Features ...

and to a corresponding reduction in the striking potential. Despite the fact that this method of restraining the electrons is less effective than the magnetic field method, nevertheless, in a number of cases the absence of the magnetic field is a definite advantage. Assuming that the pitch of the spiral h is less than the diameter of the spiral d, then $U_{reverse}$ can be calculated by the formula

$$U = \frac{Bpl_0}{\ln \frac{Apl_0}{\ln\left(1+\frac{1}{\gamma}\right)}}, \qquad (1)$$

where A and B are constants; p is the gas pressure; $l_0 = (D - d)/2$ (distance between the electrodes, D being the diameter of the cathode cylinder); γ is the Townsend surface emission coefficient, which depends on p and U. There is agreement between the experimental data and the calculated results for values of $\gamma = 10^{-2}$ to 1 as shown on the plotted results, but with values of p and U where γ is greater

Some Special Features ...

than 1, other discharge mechanisms (coronary discharge etc) begin to appear. Eq.(1) does not apply to $U_{forward}$ because the oscillating electrons create additional ionization in the discharge gap. Taking this into account, $U_{forward}$ is given by

$$U_{np} = \frac{BD\xi l_0 \ln\left(1+\frac{1}{\gamma}\right)}{A\left[l_0^2 - \frac{1}{Ap}\eta D\xi \ln\left(1+\frac{1}{\gamma}\right)\right]}. \qquad (3)$$

where ξ is a coefficient of non-homogeneity of ionization in the discharge volume; η is the ratio between the diameter of the wire of the spiral and h. With values of

$A = 50 \frac{1}{cm\ mm\ Hg}$; $B = 1300 \frac{V}{cm\ mm\ Hg}$; $\xi = 0.7$; $\log\left(1+\frac{1}{\gamma}\right) = 5$;

the formula gives results which agree with the experimental results. There are 3 figures and 5 Soviet references.

ASSOCIATION: Fizicheskiy institut im. P.N.Lebedeva AN SSSR
(Institute of Physics imeni P.N.Lebedev AS USSR)

S/057/61/031/005/008/020
B104/B205

24, 2400 (1160, 1395, 1482)

AUTHORS: Kononov, B. P., Rukhadze, A. A., and Solodukhov, G. V.

TITLE: The electric field of an emitter in a plasma located in an external magnetic field

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 5, 1961, 565-573

TEXT: A study has been made of the electric field in the neighborhood of an emitter in a plasma located in an external field. Measurements were done with the use of two antennas and a single h-f probe. The electric field of a point dipole can be described by

$$\mathbf{E} = -\frac{q}{2\pi^2}\int d\mathbf{k}\,\frac{\mathbf{k}(\mathbf{kd})\,e^{i\mathbf{kr}}}{k_i\varepsilon_{ij}(\omega)\,k_j}, \qquad (1)$$

where r is the radius vector of the observation point. Neglecting ion motion and particle collisions, the tensor $\varepsilon_{ij}(\omega)$ can be written as

$$\varepsilon_{ij}(\omega) = \begin{pmatrix} \varepsilon_1 & ig & 0 \\ -ig & \varepsilon_1 & 0 \\ 0 & 0 & \varepsilon_2 \end{pmatrix}, \qquad (2)$$

Card 1/6

The electric field...

where

$$\varepsilon_1(\omega)=1-\frac{\omega_e^2}{\omega^2-\omega_{He}^2},\quad \varepsilon_2(\omega)=1-\frac{\omega_e^2}{\omega^2},$$

$$g=\frac{\omega_e^2\omega_{He}}{\omega(\omega^2-\omega_{He}^2)},\quad \omega_e^2=\frac{4\pi ne^2}{m_e},\quad \omega_{He}=\frac{eH}{m_e c}.$$

In an appendix, it is exactly shown that

$$\left.\begin{aligned} E_z=0,\ \frac{E_\perp}{E_0}&=\frac{1}{\varepsilon_1(\omega)}\sqrt{\frac{\varepsilon_1(\omega)}{\varepsilon_2(\omega)}} \quad \text{при } \frac{\varepsilon_1}{\varepsilon_2}>0,\\ E_z=E_\perp&=0 \qquad\qquad\qquad \text{при } \frac{\varepsilon_1}{\varepsilon_2}<0. \end{aligned}\right\} \tag{3}$$

holds at $\vec{r}\perp oz$ and $\vec{d}\parallel oz$, while

$$E_z=0,\quad \frac{E_\perp}{E_0}=\frac{\varepsilon_2(\omega)}{\varepsilon_1^2(\omega)}. \tag{4}$$

is valid for $\vec{r}\parallel oz$ and $\vec{d}\perp oz$. In these relations, E_0 indicates the amplitude of the electric field of the dipole in a vacuum; E_z and $E_\perp$ are the amplitudes of the h-f field in the plasma. In the case of weak magnetic fields ($\omega_{He}\ll\omega$), (3) agrees with (4), and $E_\perp/E_0$ as a function of

density becomes infinite at one point. At $\omega = \omega_e$ the electric field in the plasma as a function of density becomes infinite with the exception of $\vec{r} \parallel oz$, $\vec{d} \perp oz$ and $\omega_{He} > \omega$, where resonance is absent. The field strength $\vec{E}$ as a function of the field strength of the external magnetic field is of great interest with a fixed plasma density. These properties of an electric field in plasma have been studied with the aid of an arrangement shown in Fig. 3. At a pressure of $2 \cdot 10^{-2}$ mm Hg (air), a gas discharge was produced between two electrodes in a glass flask 4 mm in diameter and 18 mm long. Transmitting and receiving antennas were inserted from both sides (spacing: about 3 mm). The antennas were made of coaxial cables. In first approximation, the transmitting antenna constituted an emitter which could be considered a dipole oriented along the axis of the cable. The frequency applied was $\omega = 5.7 \cdot 10^{10}$ sec^{-1}, and the receiving signal was amplified and conveyed to an oscilloscope. The solenoid generated a magnetic field of 7000 oe in the discharge tube. The authors studied the resonance of an electric field at small plasma densities, which had been produced by a discharge current of about 1 ma.

The electric field...

Fig. 8 shows the electrical diagram of the single h-f probe. A comparison between experimental and theoretical results indicates that, in accordance with theory, resonance will occur at $\varepsilon_2(\omega) = 0$ only if the dipole moment of the emitter has a definite orientation with respect to the magnetic field. The experimental density required is slightly different from the theoretical one. This is due to the varying input resistance of the antennas, which complicated the experiments considerably. The authors further examined the possibility of measuring the plasma density with the use of a single h-f probe. This method is based on the dependence of the resonance of the input resistance of the dipole on the plasma density. It could be shown that this method is applicable to both isotropic and anisotropic plasma. There are 9 figures and 6 references: 4 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Moskva (Institute of Physics imeni P. N. Lebedev, Moscow)

SUBMITTED: June 6, 1960

Card 4/6

L 13681-63 EWT(1)/EWG(k)/BDS/EEC(b)-2/ES(w)-2 AFFTC/ASD/ESD-3/AFWL/
SSD Pz-4/Pi-4/Po-4/Pab-4 AT/IJP(C)

ACCESSION NR: AP3003954 S/0057/63/033/007/0835/0838

AUTHOR: Kononov, E. P.

TITLE: Investigation of the process of plasma compression in an opposed-field magnetic trap

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 33, no. 7, 1963, 835-838

TOPIC TAGS: opposed-field magnetic trap, cusped-field configuration, magnetic trap, magnetic mirror, plasma containment experiment, plasma density investigation, plasma stability, plasma research

ABSTRACT: The containment time of cold plasma has been studied experimentally as a function of the change in sign of compression forces acting on the plasma. Data on the spatial density distribution and luminescence of plasma placed in a pulsed cusped-field configuration were obtained. Hydrogen or helium at $1-2 \times 10^{-5}$ mm Hg were used; field frequency was 6×10^4 cps and electron temperature, 10 ev. Probe signals and luminosity photographs showed that plasma was held by the magnetic field. The maximum containment time of 50 μsec was reached after the magnetic field period was increased to 200 μsec, and thereafter containment time remained constant. It is concluded that constant

Card 1/2

L 13681-63
ACCESSION NR: AP3003954

2

plasma density can be maintained in principle in a magnetic field varying in time, although the establishment of strong time-varying magnetic fields is difficult. "My sincere appreciation is extended to V. I. Veksler who suggested this approach and to M. S. Rabinovich for his attention and help in my work." Orig. art. has: 5 formulas and 5 figures.

ASSOCIATION: none

SUBMITTED: 04Apr62 DATE ACQ: 07Aug63 ENCL: 00

SUB CODE: PH NO REF SOV: 008 OTHER: 003

Card 2/2

EWT(1)/EWG(k)/EPA(sp)-2/EPA(w)-2/EEC(t)/T/EEC(b)-2/EWA(m)-2 Po-4/P1-4/
NR: AP50.3135 '001/0047/0050
IJP(c) AT

AUTHOR: Kononov, B. P.

TITLE: Resonance interaction between a plasma bunch and an electromagnetic wave in a waveguide

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 1, 1965, 47-50

TOPIC TAGS: plasma acceleration, waveguide, plasma, plasma interaction, f smoid, plasma bunch, radiative plasma acceleration

ABSTRACT: An investigation has been made of the reflection of H_{01} and H_{11} waves from a stationary plasma bunch of quasi-spherical form in a circular waveguide. H_{01} and H_{11} modes, which are easily excited and can be employed in radiative plasma acceleration, were generated in a circular waveguide 14 cm in diameter. A plasma bunch was formed with the aid of a pulsed gas discharge in a spherical glass bulb placed on the axis of the waveguide. Basic measurements were performed with a bulb 3.5 cm in diameter in the $1-2 \times 10^{-1}$ mm Hg pressure range. The calculated dependence of electric and magnetic moments on plasma density coincided with the experimental results. Resonance wave

Card 1/2

L 23292-65
ACCESSION NR: AP5003235 O

scattering can play an essential role in radiative acceleration of plasma: When the wave is scattered by a relatively large plasma bunch, the "radiative friction" is large and the resonance relatively weak; however, when the wave is scattered by small objects, the resonance effect is intensified considerably and can be used for increasing the effectiveness of radiative acceleration. Orig. art. has: 4 figures and 1 formula. [JA]

ASSOCIATION: none

SUBMITTED: 16Feb64 ENCL: 00 SUB CODE: ME,EM

NO REF SOV: 005 OTHER: 004 ATD PRESS: 3173

Card 2/2

L 23060-65 EWT(d)/EWT(l)/EWG(k)/EPA(sp)-2/EEC(k)-2/EEC-4/EPA(w)-2/EEC(t)/T/EEC(b)-2/EWA(m)-2 Pg-4/Pi-4/Pk-4/Pl-4/Po-4/Pq-4/Pz-6/Pab-10 IJP(c) AT

ACCESSION NR: AP5003236 S/0057/65/035/001/0051/0055

AUTHOR: Kononov, B. P.; Sarksyan, K. A.; Silin, V. A.; Tsopp, L. E. B

TITLE: Plasma acceleration with the aid of an electromagnetic H_{11}-type wave in a circular waveguide

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 1, 1965, 51-55

TOPIC TAGS: plasma, plasma acceleration, plasma bunch, circular waveguide, electromagnetic wave

ABSTRACT: The acceleration of plasma bunches with the aid of a strong electromagnetic H_{11} wave in the decimeter range in a circular waveguide has been experimentally investigated. The plasma was generated by a source with a pressure drop. An external magnetic field was used to confine the plasma bunch. The experimental setup consisted of a superhigh-frequency generator, a plasma source, an accelerating waveguide with a focusing magnetic field, and measuring devices. The generator produced single 1.5 Mw pulses of 10 usec duration. An H_{01} wave from a rectangular waveguide was transformed into an H_{11} wave in a circular waveguide. The pressure in the waveguide was 1—2 x 10^{-6} mmHg.

Card 1/2

L 23060-65
ACCESSION NR: AP5003236

The measurements showed that during a radiative plasma acceleration the ions acquired different energies. The character of the interaction of the wave with the plasma depends on the relationship between the frequency of the incident wave (ω) and the frequency of the Langmuir oscillations in the plasma (ω_e). At $\omega > \omega_e$ the plasma bunch is transparent, and if its size is smaller than the wavelength a coherent interaction takes place and the total acting force is proportional to the number of electrons in the plasma bunch. It is suggested that ions with engeries of 50 kev and higher appear as a result of resonance acceleration of plasma bunches of small effective size. Such bunches can appear during plasma decay. Orig. art. has: 5 figures. [JA]

ASSOCIATION: none

SUBMITTED: 16Feb64 ENCL: 00 SUB CODE: ME,EM

NO REF SOV: 006 OTHER: 002 ATD PRESS: 3173

Card 2/2

ACC NR: AP5003998 SOURCE CODE: UR/0089/65/018/001/0018/0018

AUTHOR: Veksler, V. I.; Gekker, I. R.; Golits, E. Ya; Delone, G. A.; Kononov, B.P.; [illegible]; Sarkisyan, [illegible]; Gilin, V. A.; [illegible]

ORG: [illegible]

TITLE: Interaction of plasma bunches with an electromagnetic wave

SOURCE: Atomnaya energiya, v. 18, no. 1, 1965, 77-78

TOPIC TAGS: plasma clot, plasma clot acceleration, plasma clot radiative acceleration, H sub 01 wave, H sub 11 wave

ABSTRACT: Preliminary experimental results are given of an investigation of the radiative acceleration of plasma in circular waveguides. The investigation was conducted in a 10-cm range with H_{01} and H_{11} waves. Different plasma injectors were used. Plasma bunches with an initial particle concentration of 10^{12} cm^{-3} and higher were injected with a 3×10^5 cm/sec velocity from a spark source or were generated directly on the axis of the waveguide by means of a plasma source at a pressure drop of 10^{-7}—10^{-6} mm Hg of the operating vacuum in an accelerator. Electric detectors, superhigh-frequency methods, and an electrostatic analyzer of particle energy were used for the investiga-

Card 1/2

L 23868-65

ACCESSION NR: AP5003998

0

tion. External magnetic fields with various configurations were used to confine the plasma. Accelerated ions with energies exceeding 10 kev were obtained regardless of the type of wave in the waveguide or the kind of plasma injector. The energy of the accelerated ions increased as the superhigh-frequency power increased. The total number of accelerated particles was of the order of 10^{12}. Maximum energy was 50 kev. The application of nonhomogeneous fields for the stabilization of the transverse dimensions of plasma bunches was shown to be feasible. There were practically no plasma losses on the waveguide walls when quadrupole or sextupole magnetic fields were used. Orig. art. has: 7 figures. [JA]

ASSOCIATION: none

SUBMITTED: 22Apr64 ENCL: 00 SUB CODE: ME, EM

NO REF SOV: 008 OTHER: 001 ATD PRESS: 3178

Card 2/2

L 3964-66 EWT(1)/ETC/EPF(n)-2/EWG(m)/EPA(w)-2 IJP(c) AT

ACC NR: AP5025884

UR/0057/65/035/010/1755/1756
533.9

AUTHOR: Kononov, B. P. 44,55

56
03

TITLE: Plasma acceleration in a constant electric field combined with high-frequency field 21,44,55

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 10, 1965, 1755-1756

TOPIC TAGS: plasma, plasma acceleration, cyclic plasma acceleration, doughnut accelerator, doughnut plasma accelerator, energy exchange, energy transfer

ABSTRACT: A theoretical discussion is presented of plasma acceleration by various methods in which only electrons in a homogeneous plasma are affected by the forces applied. The difficulty here is that the acceleration of electrons results in an electric current, while the plasma as a whole remains unaffected. The situation can be corrected by application of a longitudinal electric field capable of compensating for electron acceleration. It is demonstrated analytically that the addition of such a field causes electrons and ions to move with equal velocities and thus brings about an acceleration of the plasma as a whole. At the same time, the electric current in the direction of acceleration will be reduced to zero; the applied field, therefore, is used exclusively for the redistribution of acting forces. The method is of interest in cyclic acceleration of plasma, particularly in toroidal arrangements where parasitic electric current is generated. Here, application of a supplementary electric field or

Card 1/2

PC

Card 2/2

L 4241-66 EWT(1)/ETC/EPF(n)-2/EWG(m)/EPA(w)-2 LJP(c) CS/AT

ACCESSION NR: AT5007972 S/0000/64/000/000/1017/1022

AUTHOR: Veksler, V. I.; Gekker, I. R.; Gol'ts, E. Ya.; Delone, G. A.; Kononov, B. P.; Kudrevatova, O. V.; Lyk'yanchikov, G. S.; Rabinovich, M. S.; Savchenko, M. S.; Sarksyan, K. A.; Sergeychev, K. V.; Silin, V. A.; Tsopp, L. E.; Levin, M. L.; Muratov, R. Z.

TITLE: Radiational acceleration of plasma

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963. Trudy. Moscow, Atomizdat, 1964, 1017-1022

TOPIC TAGS: high energy accelerator, plasma acceleration, plasma waveguide

ABSTRACT: The practical realization of the radiational method of plasma acceleration (Veksler, V. I. CERN Symposium, 1956; *Atomnaya energiya* 2, 427, 1957) is connected with the utilization of a different kind of waveguide structure, within which a plasma bunch moves under acceleration by an electromagnetic field. Two such waveguide structures, differing in type of accelerating wave and in method of plasma injection, were produced recently in the Physics Institute, AN SSSR. Initial experiments showed that radiational acceleration of plasma was achieved in both of the structures. At the same time the Radiotechnical Institute, AN SSSR,

Card 1/2

SUBMITTED: 26May64 ENCL: 00 SUB CODE: NP,
NO REF SOV: 008 OTHER: 003
BVK
Card 2/2

KONONOV, B. V., Cand Tech Sci -- (diss) "Mechanization of the preparation of crude fodder." Saratov, 1960. 16 pp; with graphs; (Ministry of Agriculture RSFSR, Saratov Agricultural Inst); 150 copies; free; (KL, 21-60, 124)

KONDRAT'YEV, Afanasiy Borisovich, kand.tekhn.nauk; YERSHOVA, Galina Nikolayevna, inzh.; MEN'SHIKOV, Ivan Alekseyevich, prof., doktor tekhn.nauk; MOSKOVSKIY, Mikhail Ivanovich, kand.tekhn.nauk; SOBOLEV, David Iosifovich, kand.tekhn.nauk; SMIL'GEVICH, Petr Kazimirovich, inzh.; SHIROKOV, Boris Ivanovich, kand.sel'skokhoz.nauk. Prinimali uchastiye: TREBIN, Boris Nikolayevich, inzh.; OSOBOV, Vadim Izrailevich, inzh. BRIK, P.A., prepodavatel', retsenzent; IVANOV, V.A., prepodavatel', retsenzent; KOGANOV, A., prepodavatel', retsenzent; KONONOV, B.V., prepodavatel', retsenzent; MARKOV, G.Ya., prepodavatel', retsenzent; OSIPOV, G.P., prepodavatel', retsenzent; RYABOV, P.I., prepodavatel', retsenzent; SOLOV'YEV, K.Ya., prepodavatel', retsenzent; SOROKIN, V.Ya., prepodavatel', retsenzent; BANNIKOV, P., red.; VORONKOVA, Ye., tekhn.red.

[Manual for collective farm machinery operators] Spravochnik mekhanizatora sel'skogo khozyaistva. Penza. Penzenskoe knizhnoe izd-vo, 1959. 610 p. (MIRA 14:2)

1. Saratovskiy institut mekhanizatsii sel'skogo khozyaystve imeni M.I.Kalinina (for Brik, Ivanov, Koganov, Kononov, Markov, Osipov, Ryabov, Solov'yev, Sorokin).
(Agricultural machinery) (Farm mechanization)

SOV/133-58-11-6/25

AUTHORS: Boychenko, M.S., Candidate of Technical Sciences, Gavrilov, O.T., Kan, Yu.B. and Kononov, B.Z., Engineers

TITLE: Semi-continuous Casting of Stainless Steel (Polunepreryvnaya razlivka nerzhaveyushchey stali)

PERIODICAL: Stal', 1958, Nr 11, pp 983 - 987 (USSR)

ABSTRACT: Semi-continuous casting of steel 1Kh18N9T into slabs 175 x 300 mm for the production of cold-rolled sheets is described. Steel is smelted in a 20ton basic electric furnace and after casting eight 4-ton ingots the remaining steel is poured into an intermediate capacity preheated to 1 100 - 1 200 °C of the semi-continuous casting machine. From the intermediate capacity the metal is passed into a crystalliser (mould) through a 90° bend passage with a velocity of 1 100 - 1 200 mm/min and is cast into slabs 4 500 mm long, weighing 1 700 kg. The initially used and subsequently modified casting equipment is shown in figures 1 and 2, respectively. The main difficulty in obtaining quality sheets was the formation of skin on the surface of the metal in the crystalliser and its subsequent passage into the ingot. To prevent this, a wooden plank is placed on the level of the metal of a somewhat smaller cross-section than

Card1/4

that of the slab. In the centre of the plank, an opening for the passage of the stream of metal is made. Such planks protect the surface of the metal from oxidation, decrease heat losses and form a good lubrication of the walls of the crystalliser during casting, as they evolve volatiles condensing on the walls. The above considerably decreased the formation of skin. Cast slabs are weighed and cut into measured lengths using an aluminium-magnesium powder (the width of the cut 8-12 mm). From the head part about 250 mm (about 5.5% of the length) is cut off in order to remove shrinkage cavity (Figure 3). The surface of the slabs is planed to a depth of about 5 mm. The macrostructure of the cast slab is shown in Figure 4. Two main forms of non-metallic inclusions were observed: a) titanium nitrides, situated in groups in the underskin layer, in the axial zone at a distance of 1/4 of the slab thickness (Figure 5a); b) very fine inclusions in the form of thin, broken chains which are probably carbo-nitrides (Figure 5b). The microstructure of the metal was dendritic, more coarse in the middle than at the surface
Card2/4 of the slab (Figure 6). Mechanical properties and

Semi-continuous Casting of Stainless Steel

resistance to inter-crystalline corrosion of cold-rolled sheets from ordinary and semi-continuously cast ingots was approximately the same and corresponded to requirements of TU 3126-52. The surface quality of the sheets from the above two kinds of ingots was the same. The process of crystallisation of semi-continuously cast slabs was investigated using radioactive phosphorus. Samples of radioactive phosphorus mixed with powdered iron and enclosed in a copper tube (about 100 mm long) were fixed to a steel rod which was introduced into the slab immediately after the end of casting (casting velocity 1 000 mm/min). The results of the investigation (shown in Figure 7) indicated that permissible linear velocity of casting is within a range of 1 100 - 1 200 mm/min. During the development of the practice, altogether 130 tons of the steel were cast in this manner with a coefficient of utilisation of metal of 1.96 instead of 2.11 when producing cold-rolled sheets from ingots. There are 7 figures and 2 Soviet references.

SOV/133-58-11-6/25

Semi-continuous Casting of Stainless Steel

ASSOCIATIONS: TsNIIChM and Zavod "Krasnyy Oktyabr'" ("Krasnyy Oktyabr'" Works)

Card 4/4

SOV/133-58-11-9/25

AUTHORS: Il'in, A.G. and Kononov, B.Z., Engineers

TITLE: Investigation of a Metal Stream Using High-speed Cinephotography (Issledovaniye strui metalla s pomoshch'yu skorostnoy kinos"yemki)

PERIODICAL: Stal', 1958, Nr 11, pp 994 - 995 (USSR)

ABSTRACT: The behaviour of a stream of liquid steel during tapping and teeming was investigated using high-speed cine-photography. The type of camera used (Figure 1) and some details of filming and developing technique are given. The results obtained are illustrated. (Figures 2-7). There are 7 figures.

ASSOCIATIONS: TsNIIChM and zavod "Krasnyy Oktyabr'" ("Krasnyy Oktyabr'" Works)

Card 1/1

KONONOV, B. Z.

ДЕГАЗАЦИЯ СТАЛИ И СПЛАВОВ

М.А.Шумилов, П.В.Гельд, Ф.А.Сидоренко	Некоторые особенности процесса рассыпания ферросилиция.
Р.А.Рябов, П.В.Гельд	Влияние углерода на водопроницаемость стали.
Г.Н.Окороков, А.Ю.Поляков, А.М.Самарин	Особенности рафинирования стали при дуговом вакуумном переплаве.
А.М.Самарин, М.П.Кузьмин, Д.П.Ульянов, Я.М.Новак, А.И.Лукутин	Повышение качества бессемеровских рельсов методом вакуумной обработки в ковше.
Г.Н.Ойкс, И.И.Анисимов, Г.А.Соколов, В.И.Данилов, В.Л.Конов	Новая технология производства шарикоподшипниковой стали с применением вакуума.
П.Я.Агеев, В.Г.Чернов	Влияние легирующих на поведение кислорода в [illegible] при плавке его в вакууме.
И.В.Попов, В.Н.Серебрянский	Влияние технологических факторов вакуумной дуговой плавки на снижение содержания газов и неметаллических включений в шарикоподшипниковой стали.
Т.М.Воробьева, И.П.Бобылев, Е.С.Калинников	Влияние вакуумирования при переливе стали из ковша в ковш на качество стали 30ХГСНА.

report submitted for the 5th Physical Chemical Conference on Steel Production, Moscow-- 30 Jun 1959.

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000824320001-1"

S/133/60/000/004/007/0'0
A054/A026

AUTHORS: Oyks, G.N., Professor; Matevosyan, P.P., Engineer, Sokolov G.A., Engineer; Anshelos, I.I., Docent; Danilin V.I. Engineer; Konenov, B.Z., Engineer

TITLE: New Process for Melting Ball-Bearing Steel

PERIODICAL: Stal', 1960, No. 4, pp. 308 - 313

TEXT: The melting of the metal in vacuum furnaces in order to ensure
an adequate degree of degasification and deoxidation is not suitable for
mass production, because the capacity of these furnaces is small, the equip-
ment complicated and expensive. It was considered more effective to melt
the metal in a conventional furnace and apply vacuum treatment subsequently
in the ladle. However, this method did not yield satisfactory results and
tests were carried out to incorporate the vacuum treatment in the technology
of steel production. In the tests a unit was employed as that used in electro-
steel foundries including the two PBH-60 (RVN-60) type plate-rotor type
pumps connected in series with a capacity of 60 - 48 m³/min, at a vacuum of
70 - 90% and a maximum vacuum of 15 mm Hg. In the range of residual pres-

Card 1/4

sures of 5 - 10 mm the pump capacity was 25 - 40 m³/min. In order to raise
the output of the pump system, steam jet ejectors were mounted at the out-
let, producing a vacuum of 350 - 400 mm Hg. During the tests the vacuum
treatment in the ladle was carried out: a) partly in accordance with the
conventional technology, and b) partly according to a modified process. In
the conventional melting process vacuum treatment in the ladle had only lit-
tle effect on deoxidation and in order to obtain a satisfactory deoxidation
of the metal it was necessary that the oxygen contained in the metal before
the vacuum treatment be present in the form of a solution or in the struc-
ture of inclusions easily reduceable. This, however, was only possible, if
effective deoxidizing agents, such as silicon and aluminum (Ref. 6) were ab-
sent from the solution. Therefore the reduction was carried out without ferro-
silicon and aluminum which were only added to the ladle in the final stage
of the vacuum treatment, mainly for the purpose of alloying. According to
the new technology the ball-bearing steel was melted in a 12-ton basic arc
furnace with at least 1.05% C in the metal when fusing. The bath tempera-
ture was maintained at 1,580 - 1,620°C before skimming off the oxidizing
slag, i.e., somewhat higher than the usual temperature allowing sufficient
reserve for the subsequent vacuum treatment. After removing the slag fer-

Card 2/4

ro-chrome was added in a quantity corresponding to the type of steel, with
a slag mixture containing lime, fluorite, some chippings of fireclay and
fines, amounting to 3% of the weight of the metal (a little less than the
amount thus far used). Then 25 kg forge-coke was added and the furnace was
hermetically closed for 20 - 25 min. Evidently at a higher temperature of
reduction a thoroughly oxidized slag could be obtained also without the ad-
dition of ferrosilicon. As in the new technology one of the most important
purposes of the reduction was the desulfurization of the bath, the duration
was determined by the initial sulfur content of the metal and the rate of
desulfurization which could be somewhat lower than in the conventional pro-
cess, where slag was additionally deoxidized by ferrosilicon. The analysis
showed that for identical amounts of sulfur the rate of desulfurization was
even higher in the new process due to the higher temperature during reduc-
tion. The ladle was put in the vacuum chamber when the sulfur content of
the metal was about 0.15 - 0.18%. The vacuum treatment of the steel con-
taining in the solution only carbon, chrome and manganese was accompanied
by violent boiling, indicating the intensity of the deoxidation under the
influence of the carbon absorbed. After 5 - 6 min the boiling intensity
decreased, and, while vacuum was maintained, 75%-ferrosilicon (in an amount

Card 3/4

New Process for Melting Ball-Bearing Steel S/133/60/000/004/002/010
A054/A026

corresponding to the average silicon content of the steel produced) and aluminum (160 g/t) were added. Then the metal was boiled for a second time for 1.5 - 2 min. The complete vacuum treatment took only 8 - 10 min. The oxidizing agents added into the ladle were assimilated to a higher degree in the new than in the conventional process (ferrosilicon to 75% as compared to 65% and aluminum to 56% instead of 30-45). The non-metallic contaminations were analyzed quantitatively according to FOCT 801-47 (GOST 801-47) and the globular inclusions according to the scale of TsNIIP. The chemical and metallographical tests on non-metallic inclusions also proved the greater purity of the steel. The new method is economical: melting was shortened, reduction took 20 min less, the consumption of deoxidizing agents and the quantity of waste products decreased. The saving was 15 roubles per ton. There are 4 figures, 3 tables and 7 Soviet references.

Card 4/4

S/133/60/000/009/011/015
A054/A029

AUTHORS: Kan, Yu.Ye., Matevosyan, Ye. P., Kononov, B.Z.

TITLE: Comparing the Quality of 1X18H9T (1Kh18N9T) Ingots Produced by the Semi-Continuous and by the Conventional Methods

PERIODICAL: Stal', 1960, No. 9, pp. 846-849

TEXT: From the ingots produced according to the conventional methods in a basic arc furnace a longitudinal template was made, while from the ingots produced according to the "semi-continuous" method longitudinal and transverse templates were made in various arrangements. As to the macrostructure, no basic difference was found between the two kinds of specimens, in the "semi-continuous" specimens, however, an external approximately 7 mm thick case was observed; furthermore, the crystallites in these specimens had a somewhat smaller cross-section in the transcrystallization zone. The microstructural tests confirmed the assumption of several authors (Ref. 2) that the quantity of α-phase decreases as the crystallization rate increases. In the border-zone of the "semi-continuous" ingots the inclusions of the α-phase are smaller and are more evenly distributed over the basic austenite structure than in the conventional ingots. Chemical ana-

Card 1/2

S/133/60/000/009/011/015
A054/A029

Comparing the Quality of 1X18H9T (1Kh18N9T) Ingots Produced by the Semi-Continuous and by the Conventional Methods

lyses showed that elements such as C, P, Si and S are evenly distributed horizontally and vertically in both kinds of specimens: otherwise, with regard to chemical nonhomogeneity hardly any difference was found between the two types tested. In the case of "semi-continuous" ingots surface defects penetrate somewhat deeper than in the case of the other type. Structure and distribution of non-metallic inclusions were investigated by electrochemical and metallographic methods and it was found that their vertical distribution in the ingots is more uniform in the "semi-continuous" ingots than in the conventional ones, while the distribution of inclusions in the cross-section is more or less the same for both types. Investigation of gas-inclusions in the ingots showed that the distribution of hydrogen and nitrogen is more uniform in the "semi-continuous" ingots than in the conventional ones: the vertical distribution of oxygen is rather uniform in the "semi-continuous" ingots, while this is not the case, for both types, as far as their corss-sections are concerned. There are 6 figures, 2 tables and 3 Soviet references.

ASSOCIATION: TsNIIChM and Zavod "Krasnyy Oktyabr'" ("Red October" Plant)

Card 2/2

KONONOV, B Z.

SOV/5556

PHASE I BOOK EXPLOITATION

Moscow. Institut stali.

Novoye v teorii i praktike proizvodstva martenovskoy stali (New [Developments] in the Theory and Practice of Open-Hearth Steelmaking) Moscow, Metallurgizdat, 1961. 439 p. (Series: Trudy Mezhvuzovskogo nauchnogo soveshchaniya) 2,150 copies printed.

Sponsoring Agency: Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya RSFSR. Moskovskiy institut stali imeni I. V. Stalina.

Eds.: M. A. Glinkov, Professor, Doctor of Technical Sciences, V. V. Kondakov, Professor, Doctor of Technical Sciences, V. A. Kudrin, Docent, Candidate of Technical Sciences, G. N. Oyks, Professor, Doctor of Technical Sciences, and V. I. Yavoyskiy, Professor, Doctor of Technical Sciences; Ed.: Ye. A. Borko; Ed. of Publishing House: N. D. Gromov; Tech. Ed.: A. I. Karasev.

PURPOSE: This collection of articles is intended for members of scientific institutions, faculty members of schools of higher education, engineers concerned with metallurgical processes and physical chemistry, and students specializing in these fields.

Card 1/14

COVERAGE: The collection contains papers reviewing the development of open-hearth steelmaking theory and practice. The papers, written by staff members of schools of higher education, scientific research institutes, and main laboratories of metallurgical plants, were presented and discussed at the Scientific Conference of Schools of Higher Education. The following topics are considered: the kinetics and mechanism of carbon oxidation; the process of slag formation in open-hearth furnaces using in the charge either ore-lime briquets or composite flux (the product of calcining the mixture of lime with bauxite); the behavior of hydrogen in the open-hearth bath; metal desulfurization processes; the control of the open-hearth thermal melting regime and its automation; heat-engineering problems in large-capacity furnaces; aerodynamic properties of fuel gases and their flow in the furnace combustion chamber; and the improvement of high-alloy steel quality through the utilization of vacuum and natural gases. The following persons took part in the discussion of the papers at the Conference: S.I. Filippov, V.A. Kudrin, M.A. Glinkov, B.P. Nam, V.I. Yavoyskiy, G.N. Oyks and Ye. V. Chelishchev (Moscow Steel Institute); Ye. A. Kazachkov and A. S. Kharitonov (Zhdanov Metallurgical Institute); N.S. Mikhaylets (Institute of Chemical Metallurgy of the Siberian Branch of the Academy of Sciences USSR); A.I. Stroganov and D. Ya. Povolotskiy (Chelyabinsk Polytechnic Institute); P.V. Umrikhin (Ural Polytechnic Institute); I.I. Fomin (the Moscow "Serp i molot" Metallurgical Plant); V.A. Puklev (Central Asian Polytechnic Institute)

and M.I. Beylinov (Night School of the Dneprodzerzhinsk Metallurgical Institute). References follow some of the articles. There are 268 references, mostly Soviet.

TABLE OF CONTENTS:

KONONOV, B Z.

115

PHASE I BOOK EXPLOITATION SOV/5411

Konferentsiya po fiziko-khimicheskim osnovam proizvodstva stali. 5th, Moscow, 1959.

Fiziko-khimicheskiye osnovy proizvodstva stali; trudy konferentsii (Physicochemical Bases of Steel Making; Transactions of the Fifth Conference on the Physicochemical Bases of Steelmaking) Moscow, Metallurgizdat, 1961. 512 p. Errata slip inserted. 3,700 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut metallurgii imeni A. A. Baykova.

Responsible Ed.: A. M. Samarin, Corresponding Member, Academy of Sciences USSR; Ed. of Publishing House: Ya. D. Rozentsveyg. Tech. Ed.: V. V. Mikhaylova.

Card 1/16

Physicochemical Bases of (Cont.) SOV/5411

PURPOSE: This collection of articles is intended for engineers and technicians of metallurgical and machine-building plants, senior students of schools of higher education, staff members of design bureaus and planning institutes, and scientific research workers.

COVERAGE: The collection contains reports presented at the fifth annual convention devoted to the review of the physicochemical bases of the steelmaking process. These reports deal with problems of the mechanism and kinetics of reactions taking place in the molten metal in steelmaking furnaces. The following are also discussed: problems involved in the production of alloyed steel, the structure of the ingot, the mechanism of solidification, and the converter steelmaking process. The articles contain conclusions drawn from the results of experimental studies, and are accompanied by references of which most are Soviet.

Card 2/16

KONONOV, B. Z.

18 32 0D

S/137/61/000/011/028/123
A060/A101

AUTHORS: Oyks, G.N., Danilin, V.I., Ansheles, I.I., Sokolov, O.A., Kononov, B.Z.

TITLE: Production of ball-bearing steel with the use of ladle-vacuuming of the unreduced metal

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 11, 1961, 59, abstract 11V346 (V sb. "Novoye v teorii i praktike proiz-va martenovsk.stali", Moscow, Metallurgizdat, 1961, 335-342, Discuss. 428 - 439)

TEXT: According to the new technique the smelting of ball-bearing steel in basic furnaces is carried out with complete oxidation and resmelting. The oxidation period is carried out forcedly with the use of ore. The vat temperature before the elimination of the oxidizing slag is 1,590-1,620°C. After drawing off the oxidizing slag and correcting the metal with respect to its C content, Cr and Mn content, one adds in a single dose a slag mixture (3% of the weight of the metal) consisting of lime, spar, chamotte and Dinas block. Then a portion of ground coke is put on top of the slag, the furnace is hermetically closed and soaking proceeds for 20-25 min. After attaining an S content of 0.015-0.008% the smelt is

Production of ball-bearing steel ...

fed out into a ladle together with the slag. In the course of vacuum treating the unreduced metal in the ladle, a vigorous bubbling proceeds and takes 5-6 min. Thereupon 75% Fe-Si and Al are introduced from a special bunker under vacuum. At the end of the vacuuming the metal is cast into 4.1 ton ingots. The quality of the steel was determined by the statistical method from a large number of heats smelted according to the experimental and the usual techniques. The quality of the metal obtained was better. The nonmetallic impurity content constituted 0.00254% as compared to 0.00410%. The dimensions of the globules in the metal of the ordinary heats is 16-18 μ, and in the experimental heats up to 10 μ. The task of the reducing period of the heat according to the new technique is the application of active desulfurating slag and the correction of the chemical composition. The mean duration of that period is 1.32 hrs as compared to 1.70 hrs in ordinary heats, the total heat duration was shortened by 20 min, and the reducer expenditure was decreased considerably, as result of which the production cost of steel was decreased by 15 rub. per ton.

Yu. Nechkin

[Abstracter's note: Complete translation]

Card 2/2

S/137/61/000/008/009/037
A060/A101

AUTHORS: Danilin, V. I., Ansheles, I. I., Sokolov, G. A., Kononov, B. Z.

TITLE: New technique for producing ball-bearing steel under vacuum

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 8, 1961, 35, abstract 8V219 (V sb. "Fiz.-khim. osnovy proiz-va stali". Moscow, Metallurgizdat, 1961, 466-473)

TEXT: The authors describe the results of an investigation of the quality of ball-bearing steel smelted by a new technique involving the use of vacuum at the plant "Krasnyy Oktyabr'". The new technique provides for the reduction of the metal in a Fe-Mn furnace, and that of the slag - by ground coke. The metal is subjected to vacuum treatment in the ladle at an end pressure of 4 - 8 mm of mercury for a period of 8 - 10 min. About two minutes before the end of the vacuum treatment one introduces 3.6 kg/ton of 75% Fe-Si and 0.16 kg/ton of Al, and thereupon the metal is poured in air. The technique described ensures a maximum utilization of the reducing properties of C and a high degree of assimilation of Si (90%) and Al (56%). The shift to the new technique has led to a

Card 1/2

S/137/61/000/008/009/037
A060/A101

New technique for producing ...

lowering of non-metallic impurities in the finished steel, and also to a reduction in the duration of the reduction process and reduction in the expenditure of deoxidizing agents.

V. Shumskiy

[Abstracter's note: Complete translation]

Card 2/2

S/133/62/000/004/003/008
A054/A127

AUTHORS: Kononov, B.Z.; Kolpakov, A.I.; Shurygin, G.D.; Engineers

TITLE: Semicontinuous casting of stainless steel under synthetic slag

PERIODICAL: Stal', no. 4, 1962, 313 - 315

TEXT: In casting titanium-containing stainless steel, a floating skin forms on the meniscus of the metal in the crystallizer, whose creases may cause severe flaws in the ingot. This skin contains a great amount of non-metallic inclusions. By casting in a shielding atmosphere (argon or propane) it is only possible to avoid those inclusions which are formed on the metal surface, whereas inclusions emerging from the depth of the bath cannot be trapped by this method. It was found more expedient to cover the metal meniscus with liquid slag which absorbs the non-metallic inclusions more thoroughly. The following synthetic slag compositions were tested [(1) traces; (2) heat;]:

Плавка	CaF_2,	SiO_2,	CaO	Na_2O	MnO	FeO	Fe_2O_3,	Cr_2O_3,	Al_2O_3,	TiO_2,	MgO	P_2O_5,	S
А А (2)	39.08	34.58	20.28	4.78	0.20	0.08	0.09	0.03	0.32	0.27	0.36	0.027	0.035
Б Б	41.52	34.48	14.79	4.96	0.25	0.05	0.05	0.09	0.92	0.23	0.26	0.032	0.072
В В	47.28	31.60	11.13	5.46	0.10	0.03	0.04	Следы (1)	0.92	0.10	0.10	0.032	0.043
Г Г	40.20	34.24	20.28	4.62	0.18	0.08	—	—	0.70	0.33	Следы (1)	0.032	0.062

Card 1/3

Semicontinuous casting....

An ingot surface of good quality could be obtained only with a fluid slag, when over the entire perimeter of the slag meniscus a thin slag lining formed on the crystallizer walls. When the density of the slag increased and slag lumps formed which fell in the gap between the crystallizer wall and the ingot, a rough ingot surface was obtained. Consequently, the synthetic slag used should not contain much aluminum oxide which affects the viscosity of the slag, but more sodium oxide which ensures its required fluidity. The optimum slag quantity when casting 175 x 600 mm ingots of 4 - 6 tons, was about 60 - 75 kg, i.e. about 11 kg/1 ton steel. The slag is fed into the crystallizer in two batches: the first, when the crystallizer is filled with metal up to 100 mm and the second when half the ingot is cast. The yield of flawless product increased by 13 - 75% when synthetic slag was used during semicontinuous casting:

	A(with slag)	B(without slag)
Metal waste in cropping	8,65	6,9
Metal waste in roughing	11,42	10,2
Slab rejects	2,95	13,8
Technological waste	18,11	18,35
Rejects of hot-rolled sheets	0,5	7,0

Card 2/3

Semicontinuous casting....

S/133/62/000/004/003/008
A054/A127

	A(with slag)	B(without slag)
Rejects due to intergranular corrosion	1,77	0,9
Yield of flawless hot-rolled sheets	56,6	42,85

By improving the technology of the process it is expected to raise the output beyond the present 59 - 71% level. There is hardly any difference in mechanical properties between the ingots of the conventional method and those produced by semi-continuous casting under synthetic slag. There are 4 figures and 4 Soviet-bloc references.

ASSOCIATION: Krasnyy Oktyabr' Plant

Card 3/3

KONONOV, B.Z., inzh.; KOLPAKOV, A.I., inzh.; SHURYGIN, G.D., inzh.

Semicontinuous pouring of stainless steel under synthetic slag.
Stal' 22 no.4:313-315 Ap '62. (MIRA 15:5)

1. Metallurgicheskiy zavod "Krasnyy Oktyabr'".
(Continuous casting) (Steel, Stainless)

PITAK, N.V.; KONONOV, B.Z.; KOLPAKOV, A.I.; D'YACHENKO, A.I.

Service of refractories in a semicontinuous steel casting plant. Ogneupory 27 no.7:314-323 '62. (MIRA 15:8)

1. Ukrainskiy nauchno-issledovatel'skiy institut ogneuporov (for Pitak). 2. Volgogradskiy metallurgicheskiy zavod "Krasnyy Oktyabr'" (for Kononov, Kolpakov, D'yachenko).
(Refractory materials) (Continuous casting)

KONONOV, D.

Progressive work methods. Den. i kred. 14 no.11:40-42 N '56.
(MLRA 9:12)

(Banks and banking)

KONONOV, D.

The regional economic council and the bank. Den.i kred. 15 no.9:41-42 S '57. (MIRA 10:10)

1. Nachal'nik finansovogo otdela Sverdlovskogo sovnarkhoza.
(Sverdlovsk Province--Finance)

KONONOV, D.

Financial and credit planning. Den. i kred. 16 no.1:43-44 Ja '58.
(MIRA 11:3)

1. Nachal'nik finansovogo otdela Sverdlovskogo sovnarkhoza.
(Finance)

KONONOV, D.

Results of the reorganization in administering the economy.
Fin. SSSR 19 no.1:61-62 Ja '58. (MIRA 11:2)

1.Nachal'nik finansovogo otdela Sverdlovskogo sovnarkhoza.
(Sverdlovsk--Finance)

KONONOV, D.

Strengthen rather than liquidate. Fin. SSSR 19 no.9:41-42 S '58. (MIRA 11:10)

1. Nachal'nik finansovogo otdela Sverdlovskogo sovnarkhoza. (Finance)

KONONOV, D.

Coordinate changes in applications for credit. Den.i kred. 17 no.6:88-89 Je '59. (MIRA 12:10)

1. Nachal'nik finansovogo otdela Sverdlovskogo sovnarkhoza.
(Sverdlovsk Province--Credit)

KONONOV, D.

More about shortcomings in financial planning. Fin.SSSR 23 no.6:50-52 Je '62. (MIRA 15:7)

1. Nachal'nik finansovogo otdela Sverdlovskogo sovnarkhoza.
(Sverdlovsk Province--Industrial management)
(Sverdlovsk Province--Finance)

IVLIYEV, L.A.; KONONOV, D.G.

Hylemia laricicola Karl, a widespread larch pest on Kamchatka. Izv. Sib.otd.AN SSSR no.9:157-163 '60. (MIRA 13:11)

1. Dal'nevostochnyy filial Sibirskogo otdeleniya AN SSSR.
(Kamchatka--Larch--Diseases and pests)

KURENTSOV, A.I.; KONONOV, D.G.

Bark beetles (Coleoptera, Ipidae) of Kamchatka. Ent.oboz. 40 no.3:595-601 '61. (MIRA 15:3)

1. Dal'nevostochnyy filial Sibirskogo otdeleniya AN SSSR, Vladivostok.

(Kamchatka—Bark beetles)

IVLIYEV, L.A.; KONONOV, D.G.

Some mass pests of conifer seeds in Kamchatka. Soob. DVFAN SSSR no. 15:83-88 '62. (MIRA 17:9)

1. Dal'nevostochnyy filial imeni Komarova Sibirskogo otdeleniya AN SSSR.

IVLIYEV, L.A.; KONONOV, D.G.

Longicorn beetles of Kamchatka. Soob. DVFAN SSSR no.19: 117-123 '63. (MIRA 17:9)

1. Biologo-pochvennyy institut dal'nevostochnogo filiala Sibirskogo otdeleniya AN SSSR.

KONONOV, D. R.

O dopuskakh na razmery litykh detalei. (Vestn. Mash., 1950, no. 10, p. 53-55)

Tolerances for dimensions of cast machine parts.

DLC: TN4.V4

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

KONONOV, D. R.

PA 196T98

USSR/Metals - Steel, Casting, Methods Jul 51

"Risers With Air Pressure in Technology of Steel Casting," P. I. Gorbunko, D. R. Kononov, F. A. Kupriyanov, Engineers, "Bolshevik" Plant, Leningrad

"Litey Proizvod" No 7, pp 10-12

Discusses various types of castings which may be fabricated with application of compressed air in blind risers, preps of molds and pouring procedure. Yield of sound castings increases to 70-80% sometime 90% compared with 50-55% obtainable with ordinary risers. Conservation of

196T98

USSR/Metals - Steel, Casting, Methods Jul 51
(Contd)

liquid metal amounts to 2%. Method is effective also for cast iron and for copper- and aluminum-base alloys.

196T98

LUPYREV, I. I. (Engr.) KONONOV, D. R., (Prof., Dr. Tech. Sci.) GULYAYEV, B. B.

"Prevention of Hot Cracks."

in book - Improving the Quality of Steel Castings; Transaction of the All-Union Conference, Moscow, Mashgiz, 1958. 214 p.

The authors discuss methods of preventing hot cracks in castings caused primarily by clinging of the sand mold to the casting as the latter shrinks and by unsatisfactory mechanical properties of the steel at the crystallization temperature. It is recommended that the mold be designed so as to lessen its grip on the casting during shrinkage. This may be accomplished by making the mold more flexible, by maintaining definite distances between flask ribs and projecting parts of the casting. etc. The casting may be strengthened during the solidification period by the use of external coolers and by keeping the sulfur content of the casting below 0.045 percent.

34058
3/128/62/000/002/001/007
A004/A127

18.1100

AUTHORS: Gulyayev, B.B.; Alekseyev, P.Ye.; Kononov, D.R.; Stepanov, N.M.

TITLE: High-strength cast steel of good weldability

PERIODICAL: Liteynoye proizvodstvo, no. 2, 1962, 1 - 4

TEXT: The authors point out that the steel grades 30ХНМЛ(30KhNML), 30ХНВЛ (30KhNVL) and 30ДХСНЛ(30DKhSNL) with σ_s exceeding 50 kg/mm^2 according to ГОСТ (GOST) 7832-55 have no good weldability and unsatisfactory casting properties, while the steel grades 10ХНДТЛ(10KhNDTL), 13ХНДФТЛ(13KhNDFTL) and 08ГДНФЛ(08GDNFL), though of good weldability, are no high-strength steels, with σ_s not exceeding 40 - 45 kg/mm^2 after heat treatment. Investigations were carried out with compositions containing the following alloying additives: 0.8 - 1.4 % Si, 1.2 - 1.4 % Mn, 0.8 - 1.5% Cr, 0.8 - 3.0% Ni, 0.2 - 0.3% Mo, 0.5 - 0.8% W, 0.1 - 0.2% V, 0.1 - 0.2% Ti, 0.5 - 2.5% Cu, 1.5 - 1.8% Al, 0.2 - 0.3% Ce. The following scientific workers participated in the development, investigations and introduction of steel grades of good weldability: I.A. Shapranov, P.I. Garkushka, P.Ye. Kovalenko, N.A. Shuvalova and N.I. Smirnova. The authors describe various tests being carried out with specimens of different steels, e.g., 12СГФЛ

Card 1/2

34058

S/128/62/000/002/001/007
A004/A127

High-strength cast steel of good weldability

(12SGFL), 12СН2ФЛ(12SN2FL), 12Х2НМЛ (12Kh2NML), 12ДН2ФЛ(12DN2FL), 12ДСН2ФЛ (12DSN2FL) and 12ДГФЛ(12DGFL), of which the 12SGFL, 12SN2FL and 12DGFL grades had σ_s of less than 50 kg/mm^2, while the remaining grades ensured σ_s = 50 ÷ 60 kg/mm^2 in 100 mm cross sections. Tests on a special device revealed that the mechanical properties of all experimental steel grades near the crystallization temperature were not inferior to the 35Л(35L) grade. The optimum combination of mechanical properties, weldability and technological properties was shown by the grades 12DGFL, 12DN2FL, 12DSN2FL and 12SN2FL, of which a test lot was smelted in a basic electric arc furnace with subsequent casting of components of intricate configuration. Technical data presented in a table show that grade 12DN2FL steel having a good weldability, possessed σ_s of not lower than 55 kg/mm^2 combined with a high ductility and notch toughness. The authors report on investigations being carried out to establish the most favorable heat-treatment conditions for the above-mentioned steel grades, present a number of comparative graphs and tables, and, in their conclusion, especially recommend the 12DGFL grade steel of good weldability and the high-strength 12DN2FL grade steel possessing an excellent weldability to be used extensively and to be included in the GOST-standard. There are 6 figures and 4 tables.

Card 2/2

GULYAYEV, B.B.; ALEKSEYEV, P.Ye.; KONONOV, D.R.; STEPANOV, N.M.;
Prinimali uchastiye: SHAPRANOV, I.A.; GARKUSHA, P.I.; KOVALENKO,
P.Ye.; SHUVALOVA, N.A.; SMIRNOVA, N.I.

High strength foundry steel with good weldability. Lit.proizv.
no.2:1-4 G '62. (MIRA 15:2)
(Steel castings--Welding)

VLASOV, Aleksey Fedorovich; GAMARNIK, Yevgeniy Yefimovich; BORIN, Ivan Sergeyevich; KONONOV, D.R., red.

[Drying foundry molds and cores by means of infrared gas burners] Sushka liteinykh form i sterzhnei gazovymi gorelkami infrakrasnogo izlucheniia. Leningrad, 1964. 20 p. (MIRA 17:11)

S/032/62/028/007/010/011
B104/B102

AUTHORS: Abramson, I. S., Kononov, E. Ya., Mogilevskiy, A. N., Murzin, S. N., and Slavnyy, V. A.

TITLE: A photoelectric device for precisely recording Raman spectra of light

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 7, 1962, 875 - 877

TEXT: A double-beam device was designed, in which the beams are modulated with one frequency, the reference beam and the scattered beam being focused onto a light pickup alternately. The switch-over frequency (23 per sec) is such that the contours of spectral lines can be recorded with great accuracy. Behind the modulator (Fig. 1) the light beam is focused onto a spectral device (4) and thence onto a photomultiplier. The reference beam is led past the spectral apparatus, passed through a blue filter (3), and finally fed to the photomultiplier (5). The signals of the scattered light and that of the reference beam are amplified and fed to a ratiometer which works on the principle of an ЭПП-09 (EPP-09) potentiometer. An automatic voltage divider controls the sensitivity

Card 1/2

S/032/62/028/007/010/011
B104/B102

A photoelectric device for...

required for Raman lines of different intensities. The Raman line frequency is measured with a Fabry-Perot standard. There are 2 figures.

ASSOCIATION: Komissiya po spektroskopii Akademii nauk SSSR (Commission on Spectroscopy of the Academy of Sciences USSR)

Fig. 1.. Block diagram of device.
Legend: (1) source; (2) modulator; (3) light filter; (4) spectral device; (5) photomultiplier; (6) amplifier; (7) synchronous detector; (8) high-voltage source; (9) automatic voltage divider; (10) ratiometer.

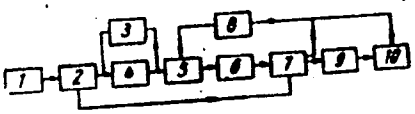


Fig. 1

Card 2/2

MANDEL'SHTAM, S.L.; FEDOSEYEV, S.P.; KONONOV, E.Ya.; LEBEDEV, S.V.

Reproduction of the portion of the solar shortwave spectrum in a laboratory. Opt. i spektr. 18 no.5:923-925 My '65.
(MIRA 18:10)

L 4387-66 EWT(l)/EPF(c)/EPA(w)-2/EWA(m)-2/T IJP(c)
ACC NR: AP5017910 UR/0051/65/019/001/0145/0146
535.33: 537.66: 546.294

AUTHOR: Kononov, E. Ya.; Mandel'shtam, S. L.

TITLE: Spectra of multiply ionized krypton atoms

SOURCE: Optika i spektroskopiya, v. 19, no. 1, 1965, 145-146, and insert facing p. 146

TOPIC TAGS: krypton, gas ionization, electric discharge ionization, ionized plasma, plasma pinch, ionization spectrum

ABSTRACT: The research was stimulated by the fact that there are few published data on the spectra of multiply ionized gases and by the increasing importance of this subject to plasma physics. The ion source was a theta pinch device consisting of a quartz chamber 50 mm in diameter, in which a discharge was produced by a coil fed from a capacitor bank (36 μf, 30 kv). The current through the coil was in the form of damped oscillations with a period of 12 μsec and produced a maximum magnetic field of 60 kOe. The chamber was filled with hydrogen mixed with 10% krypton to a total pressure on the order of 0.1 mm Hg. The chamber was in direct contact with the slit of a DFS-6 vacuum diffraction spectrograph. High speed photographs of the process, taken with an SFR camera, indicate that the gas is ionized during the first half-cycle of the magnetic field. During the second and several subsequent half-cycles the plasma experiences shock compression accompanied by intense luminescence. The

Card 1/2

L 4387-66

ACC NR: AP5017910

3

spectrum of the krypton in the 65-110 Å range exhibited clearly groups of lines having as their analogs the corresponding line groups of Rb, Sr, and Y. The close similarity of the spectra of Kr and Rb suggests that they are due to transitions of the same type. The considerable line intensity indicates that the process of multiple-ion production is highly efficient. "The authors thank S. V. Lebedev for participating in the construction of the equipment." Orig. art. has: 2 figures. 4,55

ASSOCIATION: None

SUBMITTED: 05Jan65 ENCL: 00 SUB CODE: OP

NR REF SOV: 002 OTHER: 006

Card 2/2

AM6026-65 AP5012636 UR/0051/65/018/005/0923/0925 28

AUTHOR: Mandel'shtam, S. L.; Fedoseyev [illegible]; Lebedev, S. V. 55

TITLE: Laboratory reproduction of the short wavelength section of the solar spectrum

SOURCE: Optika i spektroskopiya, v. 18, no. 5, 1965, 923-925

TOPIC TAGS: solar corona, solar plasma, solar spectrum, solar UV radiation, high temperature plasma, controlled thermonuclear reaction

ABSTRACT: Interest in this section of the spectrum is prompted by [illegible] to obtain the [illegible] and rocket [illegible] spectra [illegible] more precisely identify responding lines is necessary for the [illegible] these spectra about the chemical compositions and physical state of

Card 1/3

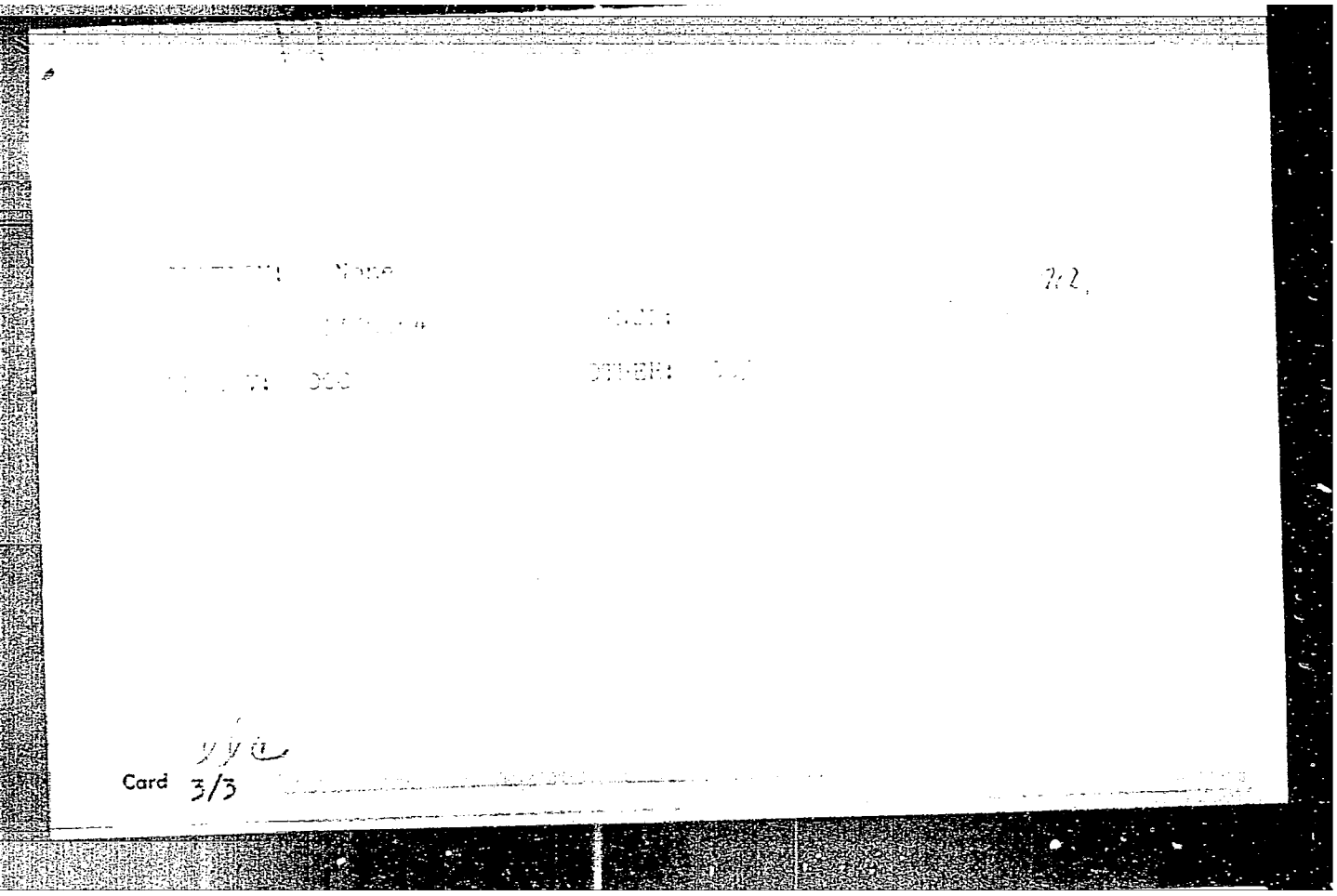
...tained between iron electrodes, which show a ...
...fields with the lines in the solar spectrum, thus ... wavelengths of
...

... The accuracy of the wa... found to be those
... A. The lines present in the ... lines of the
... Iron. It follows that ... Terrestrial
...

..., FeVI, FeVII, and FeVIII, ...

...ful to R. Tousey for supplying the solar spectrum and consenting
... publication.' Orig. art. has: 1 figure

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000824320001-1"



Card 3/3

KLEBANOV, L.D.; KONONOV, E.Z.; SHAROVA, R.K.; ZARKHIN, M.M.

Problems of mechanization, standardization of personnel and expenditure of materials in municipal electric power distribution networks. Trudy LIEI no.51:236-262 '64. (MIRA 18:11)

G.A. KONONOV

USSR / Diseases of Farm Animals. Diseases Caused by Bacteria and Fungi. R-1

Abs Jour: Ref Zhur-Biol., No 2, 1958, 7286

Author : G. A. Kononov
Inst : Leningrad Veterinary Institute
Title : Characteristics of the Microflora of Bursitis in Large Horned Cattle.

Orig Pub: Sb. rabot. Leningrad. vet. in-ta, 1956, vyp. 18, 27-33.

Abstract: Upon bacteriological examination in 77 animals acute and chronic serous and sero-fibrinous bursitis, which ran a clinically aseptic course, were discovered, mainly of the pyogenic cocci, in the bursa of 36 animals. In seven cases of serous and sero-fibrinous bursitis, brucella were isolated. Pyogenic microbes, present for a long time in a serious or sero-fibrinous ettusion, did

Card 1/2

USSR / Diseases of Farm Animals. Diseases Caused by Bacteria and Fungi. R-1

Abs Jour: Ref Zhur-Biol., No 2, 1958, 7286

Abstract: not produce a suppurative inflammation. The author recommends, in the treatment of animals with clinically aseptic oozing bursitis, the taking into consideration of the findings of the bacteriological examination of the ettusion.

Card 2/2

KONONOV, G.A., kand. veter. nauk; POLYAKOV, P.Ya., red.; BARANOVA, L.G., tekhn. red.

[Concise manual for a veterinary feldsher] Kratkii spravochnik veterinarnogo fel'dshera. Izd.2., perer. i dop. Moskva, Sel'khozizdat, 1963. 599 p. (MIRA 17:1)

KONONOV, G.G.

Role of American capital in the revival of the military and industrial potential of Germany during the period of partial stabilization of capitalism. Trudy KIIPP no.20:121-135 '59. (MIRA 13:12)
(Germany--Foreign economic relations--United States)

LEBEDEV, Nikolay Nikitich. Prinimal uchastiye KONONOV, G.M., inzh. BARANOV, A.N., red.; SHURYGINA, A.I., red.izd-va; BOTVINKO, M.B., tekhn.red.

[Engineering geodesy; geodetic operations in city planning and construction] Inzhenernaia geodeziia; geodezicheskie raboty pri planirovke i stroitel'stve gorodov. Moskva, Izd-vo geodez.lit-ry. Pt.5. 1960. 181 p. (MIRA 14:3)
(Surveying)

KOSHEVATSKIY, I.S.; KOLYCHEV, V.V.; KONONOV, G.N., veterinarnyy vrach

Sanitation measures during tuberculosis in cattle. Veterinariia 41 no.3:31-33 Mr '65. (MIRA 18:4)

1. Glavnyy veterinarnyy vrach Chuguyevskogo proizvodstvennogo upravleniya Khar'kovskoy oblasti (for Koshevatskiy). 2. Zaveduyushchiy Pechorskoy veterinarnoy laboratoriyey (for Kolychev). 3. Pechorskaya veterinarnaya laboratoriya (for Kononov).

KONONOV, G. N. and KOLICHEV, V. V.

"Leptospirosis in lambs in the polar region."

Veterinariya, Vol. 37, No. 8, 1960, p. 31

Vet. Dr. – Pechora Inter.-District Vet.-Bacterial Lab., Komi ASSR

L 08556-67 EWT(1) UR

ACC NR: AP6034053 (A,N) SOURCE CODE: UR/0346/66/000/011/0042/0045

AUTHOR: Kolychev, V. V.; Kazanovskiy, Ye. S.; Kononov, G. N. 14 B

ORG: Izhmo-Pechora Scientific Research Veterinary Station (Izhmo-Pechorskaya nauchno-issledovatel'skaya veterinarnaya stantsiya)

TITLE: Experimental toxoplasmosis of reindeer

SOURCE: Veterinariya, no. 11, 1966, 42-45

TOPIC TAGS: animal disease, toxoplasmosis, reindeer, veterinary medicine

ABSTRACT: Wild reindeer were infected by various routes with strain Rt-131 toxoplasma. Pathological and histological changes were then observed. Temperatures generally reached their maximum during the third day after infection and animals whose temperature reached 40—41C died. Breathing became rapid and hematology correlated with that of domestic animals. In general, the laboratory strain was more virulent for these animals than a strain isolated from members of a wild herd. Orig. art. has: 1 figure. [W.A. 50]

SUB CODE: 06/ SUBM DATE: none

Card 1/1 UDC: 619:616.993.192-092.9:636.294

KOLYCHEV, V.V., veterinarnyy vrach; KONONOV, G.N., veterinarnyy vrach

Leptospirosis of calves in the Arctic. Veterinariia 37 no.8:31-33 Ag '60. (MIRA 15:4)

1. Pechorskaya mezhrayonnaya vetbaklaboratoriya Komi ASSR.
(Komi A.S.S.R.--Leptospirosis)
(Calves--Diseases and pests)

KONONOV, I.

The Baltic and International Maritime Conference is 60 years old. Mor. flot 25 no.10:43-44 O '65. (MIRA 18:11)

1. Ekspert Vsesoyuznogo ob"yedineniya "Sovfrakht".

KONONOV, I.; DAVYDOV, V.

Share technical knowledge with the masses. Mast.ugl. 9 no.7: 10 Jl '60. (MIRA.13:7)

1. Sekretar' partorganizatsii shakhty No.40 kombinata Vorkutugol' (for Kononov). 2. Predsedatel' profsoyuznogo komiteta shakhty No.1 "Kapital'naya" kombinata Vorkutugol' (for Davydov).
(Coal miners)
(Technical education)

KONONOV, Ivan Anatol'yevich, 1885-1959

[Roads to Calvary of the Russian Navy; an historical sketch and sea stories] Puti k Golgofe russkogo flota; istoricheskii ocherk i morskie rasskazy. New York, Zarubezhnaia morskaia biblioteka, 1961. 161 p. illus., fold.map. (MIRA 15:5)
(Russia--History, Naval) (Tsushima, Battle of, 1905)

KONONOV, I.A.

Determining the depth at which to fix anchor bolts.
[Trudy] NII osn. no.51:68-74 '62. (MIRA 16:2)
(Machinery—Foundations)

KONONOV, I.I., podpolkovnik; KURKOV, L.F., mayor.

Training pilots prior to flights under difficult conditions. Vest. Vozd. Fl. 39 no.4:48-52 Ap '57. (MLRA 10:9)
(Flight training)

ZAKIROV, R.A.; YEREMIN, A.D.; GOLUSHKO, M.L.; KONONOV, I.M.; MYAKISHEV, I.G.

Our prospects. Zhil.-kom. khoz. 9 no.1:3-4 '59. (MIRA 12:3)

1. Ministr kommunal'nogo khozyaystva Bashkirskoy ASSR (for Zakirov). 2. Zaveduyushchiy Khabarovskim kraykomkhozom (for Yeremin). 3. Zaveduyushchiy Amurskim oblkomkhozom (for Golushko). 4. Nachal'nik planovogo otdela Kurganskogo oblkomkhoza (for Kononov). 5. Zaveduyushchiy Murmanskim oblkomkhozom (for Myakishev).
(Municipal services)

KONONOV, I.P., inzh.

Increase in the operational reliability of motor generators for driving dust supplying units. Energetik 9 no.3:16-18 Mr '61. (MIRA 14:7)

(Boilers) (Rotary converters)

KONONOV, I.P., inzh.

Electrical heating of a river water intake system of a Heat and Electric Power Plant. Energetik 12 no.11:20-23 N '64
(MIRA 18:2)

PRIVALOV, Leonid Mikhaylovich; KONONOV, K.I., otv.red.; VINTFEL'D, L.G., red.; KONTOROVICH, A.I., tekhn.red.; LEVOCHKINA, L.I., tekhn.red.

[Documentation for the repair and modernization of ships] Dokumentatsiia dlia remonta i modernizatsii sudov. Leningrad, Gos.soiuznoe izd-vo sudostroit.promyshl., 1959. 97 p. (MIRA 12:7)

(Ships--Maintenance and repair)

KONONOV, I.P., inzh.

Protection of the flexible connections of generators against atmospheric overvoltage. Energetik 10 no.7:21-23 Jl '62. (MIRA 15:7)

(Lightning protection)

Kononov, I. V.

AID P - 3773

Subject : USSR/Electricity

Card 1/1 Pub. 26 - 15/29

Author : Kononov, I. V., Eng.

Title : Execution of tackle works with the help of a metallic mast

Periodical : Elek. sta., 26 10, 48-49, O 1955

Abstract : The author describes construction works of hydroelectric power stations where metal masts were used for tackle work. Two photographs.

Institution : None

Submitted : No date

KONONOV, I.V., inzh.

2:133-144 '60. (MIRA 14:1)

(Liquid level indicators) (Electric instruments)

Abs Jour : Ref Zhur - Biol., No 9, 1958, 39010

Author : Kononov, I.V.
Inst :
Title : A Method of Filtration Control During the Study of Water-Permeability of Soils.

Orig Pub : Pochvovedeniye, 1957, No 3, 106-109.

Abstract : The described method is as follows: the examined sample of soil with an unknown filtration coefficient is installed over a second sample, the filtration coefficient of which is known beforehand. A part of the general pressure H is lost during filtration in the examined sample and another part h - in the control sample. It is possible to obtain experimentally this loss of pressure (H - h) by observing the marks of water levels in piezometric pipes. To check the accuracy of water filtration through the sample, it is necessary to calculate the loss of pressure in the

Card 1/3

Kiev Hydroamelioration Inst.

KONONOV, I. V. Cand Tech Sci -- (diss) "Study of silting and sanding as a filtration-proof means in irrigation canals." Kiev, 1959. 20 pp with diagrams (Min of Higher and Secondary Specialized Education UkSSR. Ukrainian Inst of Engineers of Water Transport), 150 copies (KL, 52-59, 121

SOV/98-59-5-10/21

AUTHOR: Kononov, I.V., Engineer

TITLE: Calculating the Process of Silting as a Method to Fight Filtration

PERIODICAL: Gidrotekhnicheskoye stroitel'stvo, 1959, Nr 5, pp 35-37 (USSR)

ABSTRACT: The author rejects the existing data on silting as being incorrect. The chief object of his criticisms are the two treatises of T.A. Negovskaya - 1) The Silting as a Method to Fight Filtration in Canals, "Gidrotekhnicheskoye stroitel'stvo", 1948, Nr 7; and 2) Artificial Silting of Canals, treatises of the VNIIGiM "Problems of Irrigation", volume XXVI-XXVII, 1952. The author then attacks Professor V.A. Shaumyan for his recommendation to use the above-mentioned data and cites the studies of Professor Ye.M. Sergeyev on the depth of the silting process. In conclusion, the author stresses the necessity to intensify research in this field and thus

Card 1/2

Calculating the Process of Silting as a Method to Fight Filtration

develop more reliable data on the process of silting. There is 1 table and 9 Soviet references.

Card 2/2

KONONOV, I.V., kand.tekhn.nauk

Arrangement of non-reinforced trenches. Mont. i spets. rab. v stroi. 24 no.9:27-30 S '62. (MIRA 15:9)
(Excavation)

ARISTAROV, N.V., inzh.; KONONOV, I.V., kand.tekhn.nauk

Comparative evaluation of prefabricated linings. Energ.stroi. no.30 61-65 '62. (MIRA 16:2)

1. Stroitel'stvo Kremenchugskoy gidroelektrostantsii (for Aristarov). 2. Nauchno-issledovatel'skiy institut organizatsii i mekhanizatsii stroitel'nogo proizvodstva Akademii stroitel'stva i arkhitektury UkrSSR.

(Precast concrete construction)

KONONOV, I.V., inzh.

High pressure relief valves. [Nauch. trudy] ENIKMASha 6:81-104 '63. (MIRA 16:9)
(Hydraulic presses--Safety appliances) (Valves)

KONONOV, I.V., inzh.; SHNEYBERG, V.M., inzh.

Control mechanism for steam- or air-lift drop forging hammers.
[Nauch. trudy] ENIKMASha 6:118-128 '63. (MIRA 16:9)
(Forging machinery) (Servomechanisms)

KONONOV, I.V., kand.tekhn.nauk; GOL'DGOR, V.A.

Milan method of constructing tunnels and underground crossings.
Transp.stroi. 13 no.9:70-72 S '63. (MIRA 16:12)

KONONOV, I.V.; SHNEYBERG, V.M.

Mechanizing the control of steam-air swaging and forging machinery. Kuz.-shtam. proizv. 4 no.1:35-37,38 Ja '62. (MIRA 17:3)

KONONOV, I.V., kand. tekhn. nauk

Lowering the unrush of ground water into strip mines by building a seepage barrier. Gor. zhur. no.11:22-25 N '63. (MIRA 17:6)

1. Nauchno-issledovatel'skiy institut organizatsii i mekhanizatsii stroitel'nogo proizvodstva, Kiyev.